

OVERSIZE TRU WASTE LASER CUTTING SYSTEM ASTD PROJECT

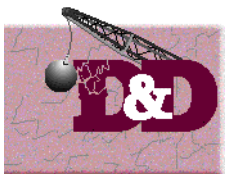
Deactivation and Decommissioning Focus Area FY 2002 Mid-Year Review

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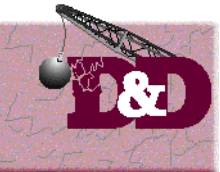
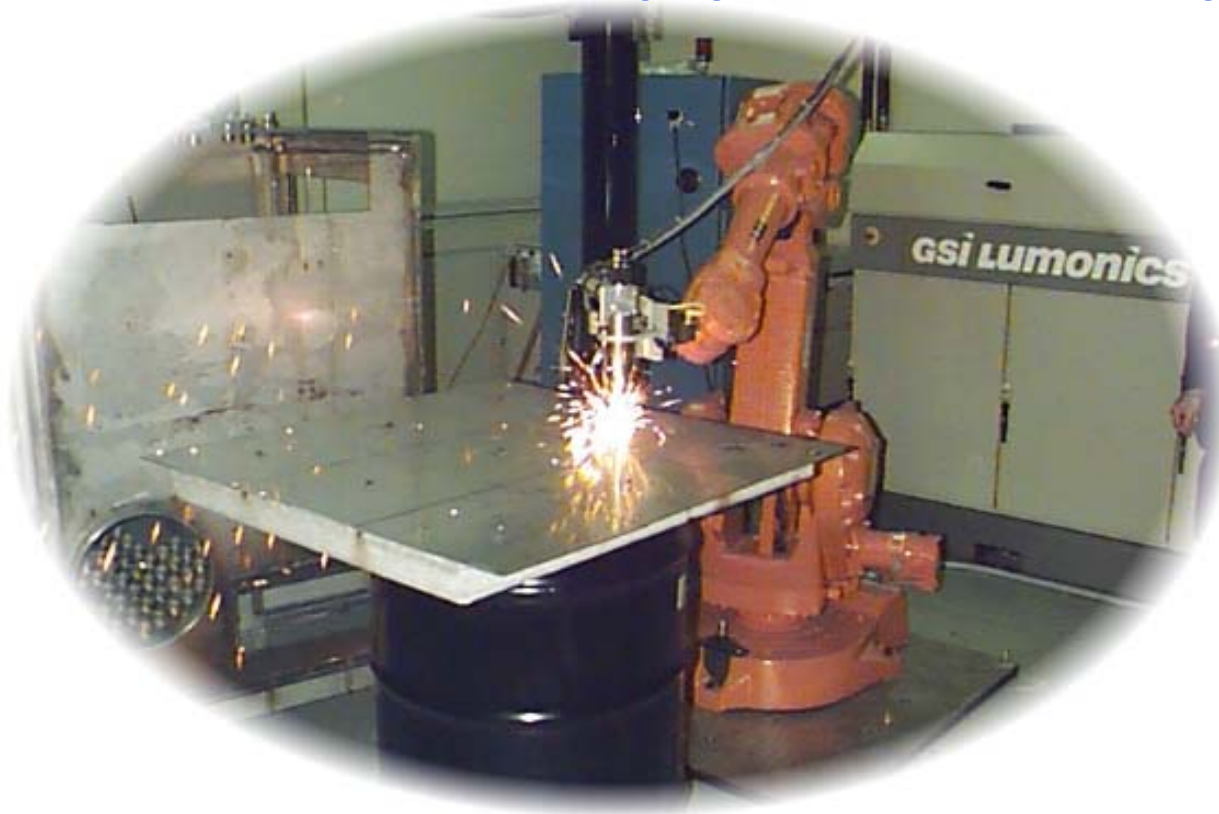


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Relevancy and Technical Approach (Criterion 1)

Project Goal

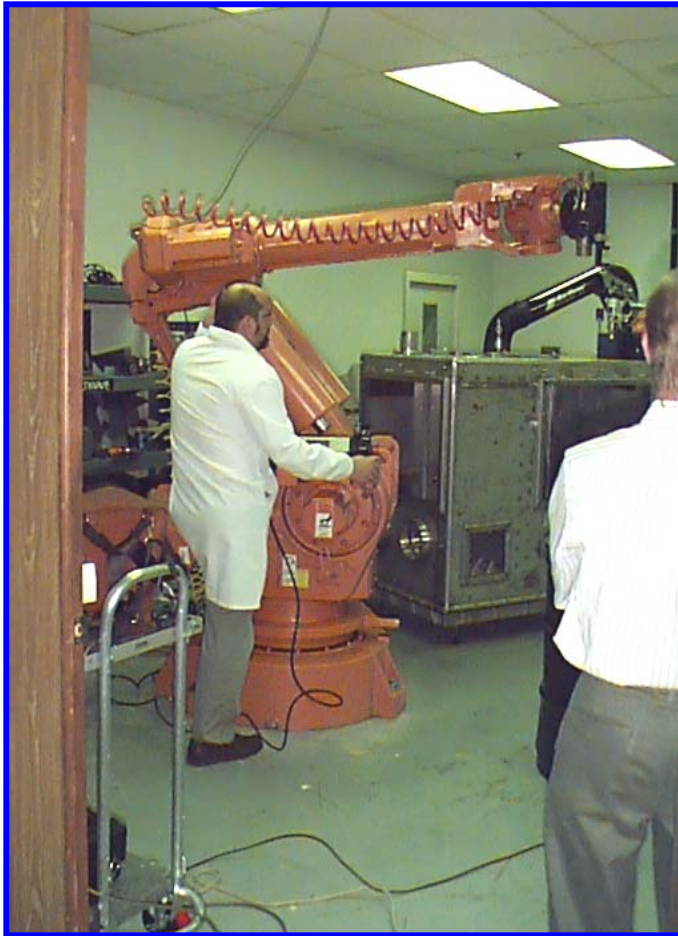
Deploy an innovative laser cutting system to reduce the size of oversize transuranic (TRU) waste and large contaminated metal items thereby enabling characterization and packaging in standard shipping containers



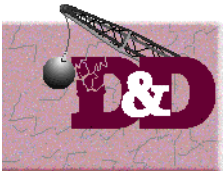
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Relevancy and Technical Approach (Criterion 1)

Technical Approach



- Minimize worker exposure to contaminated environments and potential accidents through the use of robotics and remote operations
- Use proven, off-the-shelf industrial components to assure reliable operation
- Make the system transportable so that it can be deployed at multiple DOE sites

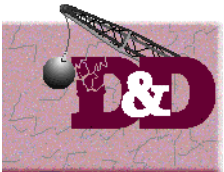


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Relevancy and Technical Approach (Criterion 1)

Scope of Work - Transportable Laser Cutting System Components

- Industrial 1.5 kW Nd/YAG laser with chiller, fiber optic cable, and cutting end effector
- Two industrial robotic arms, one to hold the cutting end effector and the other to hold the item being cut
- Cutting system control station
- Customized semi-trailer to house the system
- Laser light containment structure
- All system components are “off the shelf” items
- Each deployment site is responsible for radiation containment, material handling and full-scale operation



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Relevancy and Technical Approach (Criterion 1)

Scope of Work - Technical Team and Responsibilities

Bechtel Nevada (BN)

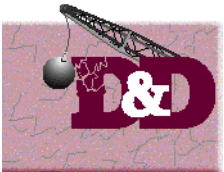
- Project management on behalf of NNSA/NV
- Responsible for dispositioning NTS oversize TRU waste boxes

Los Alamos National Laboratory

- Lead for design of laser system, procurement of major equipment
- Operations support for transportable laser cutting system
- Project management for first deployment at DVRS

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- Lead for design of robotics system
- Lead operator of transportable laser cutting system
- Project manager for potential deployment at Hanford

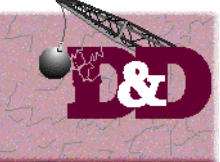


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Relevancy and Technical Approach (Criterion 1)

Technology Needs

Project addresses published needs for safe, efficient size reduction at DOE sites including the Los Alamos National Laboratory (LANL), Hanford, Nevada Test Site (NTS), Rocky Flats Environmental Technology Site (RFETS), and Lawrence Livermore National Laboratory (LLNL).



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Relevancy and Technical Approach (Criterion 1)

Technology Needs (continued)

LANL

AL-09-01-12-DD; Decontamination and Volume Reduction of TRU and LLW

Timing: DVRS is starting up now

NTS

NV07; Oversize Transuranic Waste Size Reduction

Timing: to be determined

LLNL

OK01-32; Disposal of Oversized TRU Waste Boxes

Timing: to be determined

RFETS

RF-DD11; Improved Size Reduction of Contaminated Equipment and Demolition Waste

Timing: ongoing need

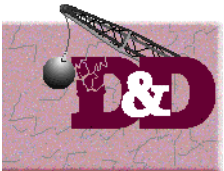
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RL-DD02; Glove Box Size Reduction System for the PFP

RL-DD08; Remote Cutting Technologies for Buildings 324 and 237

RL-DD048; Volume Reduction of Equipment

Timing: within the next several years

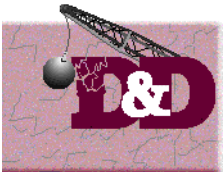


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Relevancy and Technical Approach (Criterion 1)

Applicability to DOE/HQ Thrusts

- **Thrust 1:** Closure sites (e.g. RFETS and Fernald) have large contaminated equipment requiring size reduction prior to disposal; project personnel have had preliminary conversations with these sites
- **Thrust 2:** Technology offers substantial improvement in productivity and worker health and safety compared to most baselines; precision cutting to remove “hot spots” could also result in some TRU waste becoming low-level waste, thereby significantly reducing disposal costs



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Benefits (Criterion 2)

Comparison to Baseline Technologies

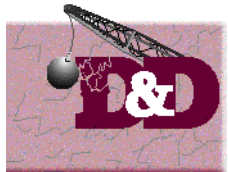
- Higher production (cutting) rates compared to manual cutting
- Lower generation of fumes and secondary waste compared to plasma torch cutting
- Precision cutting to remove “hot spots”

Health and Safety

- Worker exposure to contaminated environments and industrial-type accidents minimized through remote operation

Other Benefits as a Baseline Technology

- Complete system including laser light containment to minimize site investment
- Proven, industrial-quality components to assure reliable operation



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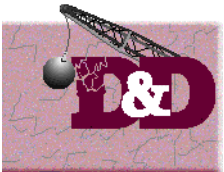
Technical Progress (Criterion 3)

Overview

- Project is nearing completion; all equipment has been specified and procured
- Preparations for pre-operational testing are underway, and deployment at DVRS is expected this fiscal year

Accomplishments – Past Year

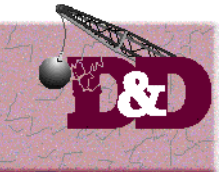
- Vendor testing
 - Equipment was installed and configured into a complete, integrated and operational system at Laserdyne Prima, the system integrator
 - Individual equipment testing followed by integrated system testing was performed
 - An acceptance test was performed and the system was accepted by the project



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Technical Progress (Criterion 3)

Vendor Testing Photos

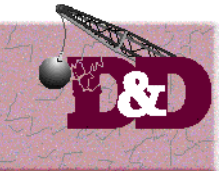


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Technical Progress (Criterion 3)

Accomplishments – Past Year (continued)

- Pre-operational testing
 - TOWRS equipment has been delivered to Q-site at LANL and is being installed
 - Test and operating procedures are being prepared
 - Clean metal items have been selected for use in testing, including a glove box and a tank



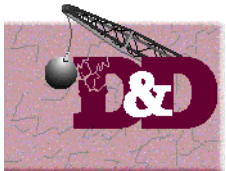
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Technical Progress (Criterion 3)

Schedule to Complete Project

Task and Activity	Start Date	Finish Date	FY 2002											
			1st Qtr			2nd Qtr			3rd Qtr			4th Qtr		
Pre-operational Testing at LANL Q-site														
Install and Startup TOWRS	10/1/01	3/31/02	XXXXXXXXXXXXXXXXXX											
Operate TOWRS at Q-site	4/1/02	4/30/02							XX					
Deployment at LANL DVRS														
Install and Startup TOWRS	5/1/02	5/30/02							XX					
Operate TOWRS at DVRS	6/1/02	7/31/02							XXXXX					
Prepare Cost and Performance Report	8/1/02	8/31/02										XX		
"Commercial" Operation	9/1/02	TBD											XX	
Project Management and Coordination														
ASTD Deployment Project Complete	9/30/02	9/30/02												★

Project Completed



Technical Progress (Criterion 3)

Cost and Schedule Performance

- Project budget at beginning of FY 2002 was \$259,000
- Project performance through January 2002 is the following:
 - BCWS = \$142,942
 - BCWP = \$ 94,042
 - ACWP = \$ 95,889
 - Cost variance = -2%
 - Schedule variance = -34%
- Completion schedule is dependent on DVRS schedule for operation

End-User Commitments

- DOE Albuquerque Operations Office Waste Management Division is the initial end-user; they have committed to installing and using TOWRS at the DVRS
- Other potential end-users, based on initial conversations, include Hanford, NTS, RFETS, and Fernald

Other Issues

- There are no significant stakeholder, community or regulatory issues
- TOWRS is based on the use of commercially available equipment
- The project has not undergone a peer review by ASME
- Issues involving disclosure or intellectual property are being evaluated

